

VELIKANOVA, T. I. Cand Geogr. Sci -- (diss) "Spring-time flow of rivers in the Northern region <sup>the part of the</sup> ~~part of the~~ Seversky Kray of European USSR and methods of forecasting it." Mos, 1956. 7 pp 19 cm.  
(Main Administration of the Hydrometeorological Service under the Council of Ministers USSR. Central Inst of Forecasts), 100 copies  
(KL, 7-57, 105)

16

VELIKANOVA, T. I.

Forecasting of Spring Floods on the Vychegda River Near Syktyvkar

The author gives a computational scheme for predicting floods with accuracy of prediction ('vlagovremennost') up to 10-30 days at drop and up to 5-8 days for a peak. The intensity of snow thaw is computed from a relation between quantity of standing snow and total positive mean daily temperature (for forest one takes 2 mm/degree; and for field, 6 mm/degree). Liquid precipitation is also taken into account. The loss is computed graphically according to relations between volume of surface runoff and reserve of water in snow and spring precipitation. The accuracy of forecasting of the height of the peak flood testified to by the fact that the peak sets in 5-8 days later than the descent of the main mass of snow. (RZhGeol, No. 4, 1955) Tr. Tsentr. ir-ta progonozov, No. 30, 1953, 91-99.

SO: Sum, No. 744, 8 Dec 55 - Supplementary Survey of Soviet Scientific Abstracts (17)

~~VNIKANOVA, T.I.~~

Forecasting spring flood of the river Vychegda at Syktyvkar. Tridy  
TSIP no.30:91-99 '53. (MIHA 11:.)  
(Vychegda River--Floods)

14-57-6-12271D

Translation from Referativnyy zhurnal, Geografiya, 1957, Nr 6,  
p 81 (USSR)

AUTHOR: Velikanova, T. I.

TITLE: Spring Flow in the Rivers on the Northern Periphery  
of the European USSR and the Method of Forecasting  
This Flow (Vesenniy stok rek Severnogo kraja Yevro-  
peyskoy chasti SSSR i metodika yego prognoza)

ABSTRACT: Bibliographic entry on the author's dissertation for  
the degree of Candidate of Geographical Sciences,  
presented to Tsentr. in-t prognozov (Central Fore-  
casting Institute), Moscow, 1956

ASSOCIATION: Tsentr. in-t prognozov (Central Forecasting Institute)

Card 1/1

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859320003-0

~~VELIKANOVA, T.I.~~

*Losses of spring runoff in northern European U.S.S.R. Meteor.  
i gidrol. no.1:19-25 Ja '57.  
(Runoff)*

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859320003-0"

VELIKANOVA, T.I.

"Forecasting of the Spring High Waters on the Vychegda River Near Syktyvkar."

SO: "Problems of Hydrological Weather Forecasts." No 30(57), 1953, page 91.

KASHIRSKIY, Arkadiy Anatol'yevich; BIRIN, Yuliy Nikolayevich;  
VELIKANOVA, T.M., nauchn. red.; BOGINA, S.L., red.izd-va;  
TARKHOVA, K.Ye., tekhn. red.

[Use computing equipment in construction] Vychislitel'muiu  
tekhniku - na sluzhbu stroitel'stva. Moskva, Gosstroizdat,  
1963. 100 p.  
(NIRA 16:12)  
(Electronic data processing--Construction industry)

VELIKANOVA, T.M.

BR

PHASE I BOOK EXPLOITATION

SOV/5962

Vsesoyuznoye soveshchaniye po vychislitel'noy matematike i prime-  
neniyu sredstv vychislitel'noy tekhniki, Baku, 1958.

Trudy (Transactions of the All-Union Conference on Computer Mathe-  
matics and Applications of Computers) Baku, Izd-vo AN Azertayd-  
zhanskoy SSR, 1961. 254 p. 500 copies printed.

Sponsoring Agency: Akademiya nauk Azerbaydzhanskoy SSR. Vychis-  
litel'nyy tsentr.

Eds.: A.A. Dorodnitsyn, S.A. Alekseev, and K.F. Shirinov; Ed. of  
Publishing House: A. Til'man; Tech. Ed.: T. Ismailov.

PURPOSE: The book is intended for mathematicians and other spe-  
cialists interested in computer theory and uses for computers.

COVERAGE: The book contains the texts of 24 papers presented at  
the All-Union Conference on Computer Mathematics and Applica-  
tions of Computers held in Baku, 3-8 Feb 1958. The "Resolution"

Card 1/8

Transactions of the All-Union (Cont.) SCV/5962

of the conference, consisting of proposals for accelerating the development of computer mathematics and computer engineering, is also included.

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Card 2/0

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Card 3/6

S/044/62/000/006/115/127  
B162/B102

16,6800

AUTHORS: Velikanova, T. M., Yershov, A. P., Kim, K. V., Kurochkin,  
V. M., Oleynik-Ovod, Yu. A., Podderyugin, V. D.

TITLE: Programming program for a computer

PERIODICAL: Referativnyy zhurnal. Matematika, no. 6, 1962, 70, abstract  
6V376 (Tr. Vses. soveshchaniya po vychisl. matem. i  
primeneniyu sredstv vychisl. tekhn. Baku. AN AzerbSSR, 1961,  
, 81 - 93).

TEXT: A programming program (PP) is described for the computer C-3 (S-3).  
The information which the programmer prepares for the PP consists of five  
parts: (1) scheme of the program, (2) removed operators, (3) information  
on quantities, (4) information on memory arrays, (5) arrays. The scheme  
of the program may include arithmetical and logical operators, recovery  
operators, non-standard operators, re-address operators and binary  
counting operators. In the scheme of the program the necessity of a  
cyclic repetition of a certain group of operators may be indicated, for  
which this group is enclosed in brackets. Under the opening bracket of the  
cycle, the parameter of the cycle and its initial value, if it differs

Card 1/2

VB

Programming program for a computer

S/044/62/000/006/115/127  
B162/B102

from zero, are indicated. If the number of repetitions of the cycle is determined by a finite value of the parameter, then the latter is placed under the opening bracket. A description is given of a method used in the PP of recording the occupied cells of the memory. An occupancy table is drawn up in which each place corresponds to a given cell and contains a 1 if the cell is free. The number of the free cell is determined from the modulus of the order of the number obtained by normalizing the line of the table differing from zero. An example of information for the PP is given.  
[Abstracter's note: Complete translation.]

VI

Card 2/2

9,7100  
AUTHORS:

TITLE:

**PERIODICAL:**

TEXT:

**PERIODICAL:** no. 11, 1961, chaniya po vychisl. matem. i vychisl. tekhn., Baku, AN AzerSSR, 1961.

**TEXT:** It is shown that in 1957 in the Computing Center of the Academy of Sciences of the USSR, work on forming the system programming program (SPP) was completed. By using SPP the system programing is replaced by the process of actual problems. In working out the information for SPP concerning the problem being solved. In working out the method of process providing information about the problem for SPP the following points were observed: a) If possible, to provide the best approximation of

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**APPROVED FOR RELEASE: 09/01/2001**

**CIA-RDP86-00513R001859320003-0"**

Programming program for machines

32903

S/194/61/000/011/016/070  
D209/D302

the information to mathematical formulation of problems (i.e. to calculated formulae); b) reduction of the volume of auxiliary and purely technical work connected, as a rule, with the mathematical formulation of the problem and with the specific character of work on universal computing machines; c) that from the information one could see more or less accurately the structure of the completed program; d) reduction of volume of total information in order to make it more descriptive and easily surveyed. The information for SPP consists of five parts: 1) Program scheme - basic part of the information; 2) operators (0); 3) information about magnitudes; 4) information about memory blocks; 5) blocks. Except for the program scheme all the remaining parts of the information do not have to be given in an actual problem. The whole terminology used in this paper is explained. The program scheme is given. It is shown that the scheme can include 0's of the following types: 1) Arithmetical 0's; 2) restoration 0's; 3) non-standard 0's; 4) re-addressing 0's; 5) double counting 0's. Each operator in the scheme is represented by a letter giving the type of the 0 followed by the

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Programming program for machines

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D209/D302

information about the given 0. The arithmetical 0's and certain non-standard 0's of special form are the exceptions. The popularity of the program scheme, the nearness of its form to the form of the mathematical formulation of the problem are obtained basically by a specific solution of the registration of mathematical formulae in arithmetical 0 and preservation in the program scheme. Examined in detail is an arithmetical 0 which realizes a single calculation to a certain sequence of formulas of the type  $F(x_1, x_2, \dots, x_n) = > y$ , where the symbol - ">" indicates that  $y$  is a result of calculation according to the formula  $F$ . Further on, logical 0's non-standard 0's, cycles, re-addressing 0's, restoration 0's and double counting 0's are examined. Finally, an example of integration of a parabolic equation of the type

$$\frac{\partial z}{\partial t} = 0.75 \sqrt{x(1-x)(t^2 + 2)} \frac{\partial^2 z}{\partial x^2},$$

$$z(x_1, 0) = 0; \quad z(0, t) = 0; \quad z(1, t) = t$$

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Programming program for machines

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S/194/61/000/011/016/070  
D209/D302

up to the moment when  $t = T$  is given. One of the possible calculated formulas is shown. Information is provided about the block and the program scheme. [Abstracter's note: Complete translation]

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Card 4/4

V E L I K A N O V A , T. M.

(60) 23(2)

PLATE 1 HIGH EXPLOITATION

NOV/1969

Akademiya nauk Azerbaydzhanoy SSR

Bessey dokladov Soveshchaniya po vychislitel'noy matematike i primeneniyu  
sredstv vychislitel'noy tekhniki (Outline of Reports of the Conference On  
Computational Mathematics and the Use of Computer Techniques) Baku, 1970.  
63 p., 400 copies printed.

Additional Sponsoring Agencies: Akademiya nauk SSSR. Vychislitel'nyy tsentr,  
and Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

No contributors mentioned.

PURPOSE: This book is intended for pure and applied mathematicians, scientists,  
engineers and scientific workers, whose work involves computation and the use  
of digital and analog electronic computers.

COVERAGE: This book contains summaries of reports made at the Conference on  
Computational Mathematics and the Application of Computer Techniques.  
The book is divided into two main parts. The first part is devoted to  
computational mathematics and contains 19 summaries of reports. The second  
section is devoted to computing techniques and contains 20 summaries of  
reports. No personalities are mentioned. No references are given.

Aizazarov, S.A. Mathematical Description of Transient Processes in Nonlinear  
Electromagnetic Systems 11

Khatiashvili, I.W. The Almansi-Mitchell Problem for a Beam Formed  
by Two Concentric Circular Cylinders of Various Materials 12

Karmazina, L.N. The Work of the Mathematical Tables Branch of the  
Computing Center at the Academy of Sciences, USSR 13

Ganjanov, A.M. Solution of the Fundamental Problem of the Filtration of  
Gas-containing Petroleum by Numerical Methods 14

Tsvetkov, A.P., and V.M. Kurochkin. Automatic Programming, the Contemp-  
orary State, Fundamental Problems 15

Vasil'ev, S.M., and A.P. Tsvetkov, L. T. Klin, V.M. Kurochkin, Yu. A.  
Gulyain-Ovod, and V. D. Podderyugin. Computer Programming Routines  
for the "Bureba" Computer (PPS) 16

Card 3/

VELIKANOVA, T.M.; ANTIPOV, I.N.; CHIBISOV, V.V., otv. red.

[Work at the control desk of the BESM-2 computer; programmer's handbook.] Rabota za pul'tom BESM-2; posobie dlia programmistov. Moskva, 1965. 31 p. (Akademija nauk SSSR. Vychislitel'nyi tsentr. Standartnye i tipovye programmy BESM-2, no.10) (MIRA 18:8)

KONDREVA, T.N.; BARKOVSKIY, V.P., VENKOVSKII, I.V.

Complex compounds of tetravalent cerium with sulfate ions.  
Zhur. neorg. khim. 10 no.11:127-131 Je '65. (ZINRA 18:11)

I. Orel'skiy gosudarstvennyy universitet imeni Gor'kogo.  
Submitted July 10, 1963.

YEREMENKO, V.N.; TOLMACHEVA, Z.I.; VELIKANOVA, T.Ya.

Structure of titanium carbide alloys with nickel, chromium,  
and molybdenum. Issl.po zharopr.splav. 8:95-102 '62.

(MIRA 16:6)

(Powder metallurgy) (Phase rule and equilibrium)

YEREMENKO, V.N.; VELIKANOVA, T.Ya.

Investigation of the tin - titanium system in the tin rich region.  
Zhur.neorg.khim. 7 no.7:1750-1752 Jl '62. (MIRA 16,3)  
(Tin-titanium alloys)

L 31873-66 EWT(m)/ETC(f)/T/EWP(t)/ETI  
ACC NR: AT6013564 (A)

IJP(c) WH/GD/JG/JD  
SOURCE CODE: UR/0000/65/000/000/0265/0273

44  
43  
BT/

AUTHOR: Yeremenko, V. N.; Velikanova, T. Ya.

ORG: Institute of Material Science Problems, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Interaction between molybdenum and titanium carbide

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Vysokotemperaturnyye neorganicheskiye soyedineniya (High temperature inorganic compounds). Kiev, Naukova dumka, 1965, 265-273

TOPIC TAGS: carbide, molybdenum compound, molybdenum, nonferrous metal, titanium, titanium compound

ABSTRACT: Interaction between molybdenum and titanium carbide in the 1.2-90 mol % TiC range was investigated by x-ray and metallographic techniques. Samples of Mo-TiC in various ratios were prepared by prolonged melting technique as well as by fusion in vacuo ( $10^{-4}$  mm Hg) of mixtures of TiC with Mo at 1850°-2000°C. The oxygen was removed from the samples by reduction with hydrogen at 1000°C. It was found that the Mo-TiC system is quasibinary and exhibits a eutectic type crystallization pattern. The eutectic temperature is 2175 ± 15°C. The solubility of Mo in TiC at the eutectic temperature is 37 mol % and at 2000°C it is 25 mol %. The solubility of TiC in Mo at the eu-

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L 31873-66

ACC NR: AT6013564

tectic temperature is within the 3.5-4.5 mol % range and at 2000°C it falls within the 2-2.5 mol % range. The temperature dependence of the thermodynamic activity ( $a_{\alpha}$ ) of carbon in TiC and Mo<sub>2</sub>C is shown in figure 1. A phase diagram of the quasibinary Mo-C system is also given. Orig. art. has: 6 figures, 1 table.

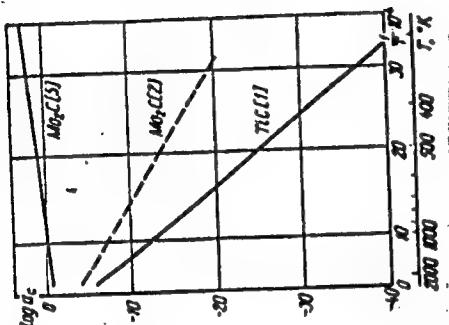


Fig. 1.

SUB CODE: 11,07/ SUBM DATE: 03Jul65/ ORIG REF: 003/ OTH REF: 003

Card 2/2 PB

YEREMENKO, V.N., VELEKANOVA, T.YA.

Crystallization type and composition of higher molybdenum  
carbide. Porosh. met. 3 no.1:41-43 Ja '65. (MIRA 18:10)

I. Institut preblam materialovedeniya AN UkrSSR.

*VELIKANOVA, T.YA.*

PLATE I BOOK EXPORTATION 30V/3624  
Institut metallokhimii i spetsial'

Nauchnyj spiskovoy  
Metallurgicheskiye materialy i metody ikh issledovaniya; informa-  
tsionnye materialy (Cement Materials and Methods of Their  
Analysis; Information Material) Kiev, Izd-vo Akademiya Nauk  
SSR, 1959.  
25 p., 1,500 copies printed.

Ed. of Publishing House: I.V. Krasina; Tech. Ed.: A.M. Lisovets  
Editorial Board: I.M. Prantsevich, I.M. Fedorchenco, O.S.  
Plavarenko, O.V. Sazonov (resp. Ed.), V.N. Yeremenko, and V.M.  
Pafarev.

Purpose: This collection of articles is intended for scientific

workers, designers, and engineering and technical workers in  
the metallurgical, machinery-manufacturing and other branches  
of industry.

Content: In this collection of articles the authors describe the  
production of carbides, nitrides and other heat resisting com-  
pounds, giving their physicochemical and mechanical properties.  
Their thermal processing and the processing installations are  
also described. A new method is proposed for the production of  
oxides from refractory compounds. Certain compounds  
and the energy dissipation in materials during high-frequency  
mechanical vibrations is determined. No personnel are men-  
tioned. There are 7 schemes, 16 diagrams, 6 tables  
and 17 references, 16 of which are Soviet.

Fedorchenko, I.M., and Yu.M. Semenovich. Installation for Determining  
the Kinetics of Preparation and the Vapor Tension of Metal Borides 13

Kuz'menko, V.A. Method of Determining the Real Characteristics  
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Force of Semiconductor Materials at Room Temperature 30

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Sazonov, O.V. Physicochemical and Mechanical Properties of the  
Carbides and Nitrides of Boron and Silicon 36

? But'chenko, V.A. Calorimetric Method of Determining Energy Dissipa-  
tion in a Material During High-Frequency Mechanical Vibrations 40

Verbovskaya, T.S. Preparation of Titanium Nitride From Titanium  
Spokes 45

Yeremenko, I.M., and O.O. Seraya. Analysis of Vanadium Silicide  
Bases From High-Melting Compounds 50

Sazonov, O.V., T.S. Verbovskaya, M.M. Sazonov, and T.Y.  
Bobkov. Preparation of the Nitrides of High-Melting Metals 53 15

S/659/62/008/000/014/028  
I048/I248

AUTHORS: Yeremenko, V.N., Tolmacheva, Z.I., and Velikanova, T.Ya.

TITLE: On the structure of titanium carbide alloys with nickel,  
chromium, and molybdenum

SOURCE: Akademiya nauk SSSR.. Institut metallurgii, Issledovaniya  
po zharoprochnym splavam. v.8. 1962. 95-102

TEXT: The systems Ti-C-Ni, Ti-C-Cr, and Ti-C-Mo were studied in an attempt to determine the true phase composition of cermets containing TiC with Ni, Cr, or Mo. The solubility of Ni in TiC at 1000-1280°C is 0.7% by wt.; TiC-Ni alloys containing over 0.7% Ni are composed of two phases, the microhardness of one of the phases being 3000 kg./sq.cm. The section TiC-Ni through the Ti-C-Ni system; as well as the TiC-Cr and TiC-Mo sections through the respective ternary systems, are quasibinary; the melting of alloys containing over 5% Ni starts at 1280-1300°C. In the system Ti-C-Cr, the formation of a new phase,  $\text{Cr}_{23}\text{C}_6$ , is observed when small amounts of TiC are added to Cr; the TiC-Cr alloy containing 20% Cr is composed of

Card 1/2

S/659/62/008/000/014/028  
I048/I248

On the structure of titanium...

three phases whose microhardness (300, 1000, and 3000 kg.sq.cm.) corresponds to that of solid solutions based on Cr, chromium carbide, and TiC respectively. TiC-Cr alloys containing 52.85 and 63.0% Cr are composed of two phases - Cr-based and TiC-based solid solutions. All alloys in the system Ti-C-Mo are composed of two phases, with microhardnesses of 300 and 2400 kg./sq.cm.; x-ray data reveals that these are Mo-based and TiC-based solid solutions. The experimental data for this system disagrees with the data of Albert and Norton (Planseeberichte fur Pulvermetallurgie, 4, 2, 1956), according to which a  $\text{Mo}_2\text{C}$ -based solid solution exists in the system. There are 7 figures and 1 table.

Card 2/2

S/078/62/007/007/013/013  
B119/B101

AUTHORS: Yeremenko, V. N., Velikanova, T. Ya.

TITLE: Investigation of the system tin - titanium within the range rich in tin

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 7, 1962, 1750 - 1752

TEXT: The structure of Sn - Ti alloys containing 0 - 34.6 % by weight of Ti was studied. Results: Ti in concentrations of 0.008 - 20 % by weight in the alloy lowers the crystallization point of Sn ( $232^{\circ}\text{C}$ ) by 1 -  $2^{\circ}\text{C}$ . All alloys containing 0.008 - 18.98 % Ti show two phases only. Crystals in the intermetallic phase are evenly distributed through the mass of tin. The solubility of Ti in Sn in the solid state is 0.006 - 0.008 % Ti. In Sn - Ti alloys with 8.3 - 34.6 % Ti a nonvariant conversion occurs at  $\sim 790^{\circ}\text{C}$ , the nature of which is not yet clarified. There are 1 figure and 2 tables.

SUBMITTED: November 1, 1961

Card 1/1

33798  
S/137/62/000/001/043/237  
A060/A101

15.224D

AUTHORS: Yeremenko, V. N., Velikanova, T. Ya.

TITLE: On triangulating the system titanium-carbon-molybdenum

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 36, abstract 10265  
("Poroshk. metallurgiya", 1961, no. 3, 20 - 24 [English summary])

TEXT: An analysis of the thermodynamical data on the carbides of Mo and Ti has made it possible to assume that the system Ti-C-Mo should be susceptible to triangulation along the sections TiC-Mo, TiC-Mo<sub>2</sub>C, TiC-MoC. The experimental verification of this assumption was carried out upon the alloys of these binary systems, prepared by pressing the mixtures and sintering at 1,850°C for 5 hours. X-ray structure, durometric, and metallographic analyses have uncovered in the sintered alloys the presence of only two phases: Mo and TiC. A conclusion is drawn as to the pseudobinary eutectic nature of the Mo-TiC system and the results of investigations of the Mo-Ti-C diagram by other authors are discussed.

R. Andriyevskiy

[Abstracter's note: Complete translation]

Card 1/1

"APPROVED FOR RELEASE: 09/01/2001

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"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859320003-0

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859320003-0"

VELIKANOVA, V.I.

Penicillin in appendiceal peritonitis. Sovet. med. No.1:5-6 Jan 52.  
(CLML 21:4)

1. Of the Surgical Division (Head—Honored Physician RSPSR V.A. Krush-  
kov), Children's Hospital imeni I.V. Rusakov.

VELIKANOVA, V. I.

Penicillin in appendiceal peritonitis., Sov. med., No. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952 1653, Uncl.

L 367 A-61  
ACC NR: AT6012363

15 (c)

CG/CB-2/RC

SOURCE CODE: UR/0000/65/000/000/0011/0019

AUTHORS: Yeremenko, V. N.; Velikanova, T. Ya.; Shabanova, S. V.

ORG: none

16  
BT1

TITLE: Structure of certain alloys of the ternary system Ti--Mo--C

SOURCE: Soveshchaniye po metallokhimii, metallocedeniyu i primeneniyu titana i yego  
splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium al-  
loys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 11-19TOPIC TAGS: titanium, molybdenum, carbon, alloy phase diagram, hardness, lattice  
parameterABSTRACT: The phase relationships of the subsystems  $\text{Mo}_2\text{C}$  -  $\text{TiC}$ , and  $\text{Mo}_3\text{C}_2$  -  $\text{TiC}$  of  
the system Ti--Mo--C were studied. The study was carried out by means of microstruc-  
tural and x-ray analysis. The experimental results are summarized in graphs and tables  
(see Figs. 1 and 2). The lattice parameters and hardness of the phases occurring in  
the system were determined. Above 2000°C, the higher carbide of molybdenum and titanium  
carbide form a continuous series of solid solutions.

Card 1/2

L 39760-56

ACC NR: AT6012363

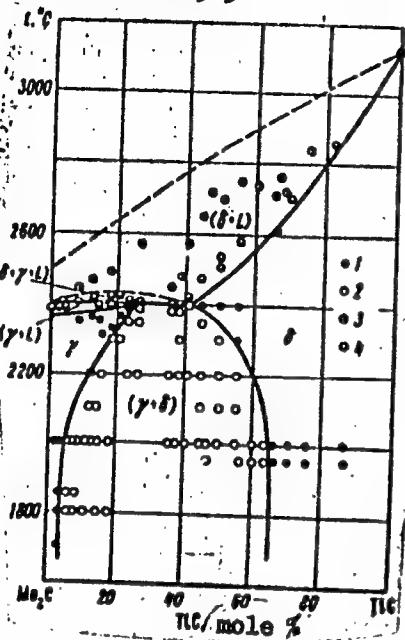


Fig. 1. Polythermic section  $\text{Mo}_2\text{C}$  -  $\text{TiC}$ .  
 1 - single-phase alloys  
 $\gamma$  or  $\delta$ ; 2 - two-  
 phase alloys ( $\gamma + \delta$ );  
 3 - temperatures at  
 which the specimens  
 are in the solid-  
 liquid state; 4 -  
 temperature of  
 solidus (obtained  
 after the method  
 of Al'tertum-  
 Pirani).

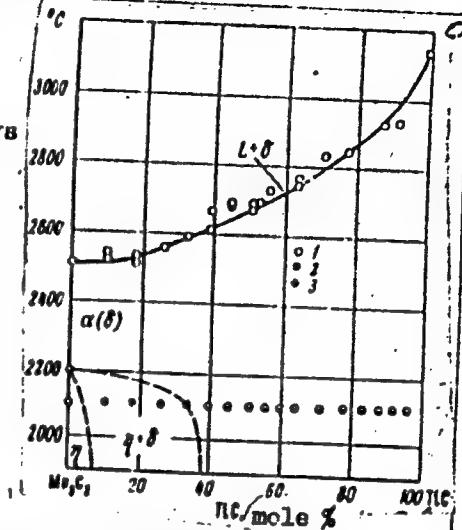


Fig. 2. Polythermic section  
 $\text{Mo}_3\text{C}_2$  -  $\text{TiC}$  (according to  
 preliminary data). 1 - data of  
 thermal analysis; 2 - single-  
 phase alloys; 3 - two-phase  
 alloys.

Orig. art. has: 5 tables and 10 figures.

SUB CODE: 11/  
 Card 2/20076P

SUBM DATE: 02Dec65/

ORIG REF: 003/ OTH REF: 005

VELIKANOVA, V. I.

Appendicitis

Penicillin in appendiceal peritonitis. Sov.med. No. 1, 1952

Monthly List of Russian Accessions, Library of Congress, May 1952, UNCLASSIFIED.

VELIKANOVA, V. I.

Peritonitis

Penicillin in appendiceal peritonitis., Sov. med., no. 1, 1952.

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SEMENOVA, M.N.; VELIKANOVA, V.I.

Antibiotic substances from the culture liquid of the "tea fungus"  
Medusomyces Gisewii. Dokl. Akad. SSSR 141 no.2:498-499 N 61.

1. Predstavleno akademikom A.L.Kursanovym.  
(ANTIBIOTICS) (MYCODERMA) (MIRA 14:11)

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fore preferable. Other art

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"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859320003-0

VIDRO, L.I.; GORELOVA, M.N.; VELIKANOVA, Ye.I.

Satisfactory conditions for the primary annealing of glass parts.  
Stek. i ker. 13 no.10:10-12 0 '56. (MILRA 9:12)  
(Glass manufacture)

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859320003-0"

VELIKANOVA, Ye.V.

Experimental production of fertile hybrids of two species of straw-  
berries (*Fragaria ananassa* Duch. x *F. moschata* Duch. Bot. zhur.<sup>42</sup>  
no.1:102-106 Ja '57. (MLRA 10:2)

1. Plodovo-yagodnaya optytnaya stantsiya, g. Rossosh' Voronezhskoy  
oblasti. (Strawberry breeding)

VELIKANOVA, Z.M.; YARNYKH, N.A.

Laboratory studies of the velocity field of a horizontal shear  
in a sand-wave structure of the bottom. Trudy GGI no. 120:31-36  
'65. (MIRA 19:1)

L 10959-66  
ACC NR: AT6016518

(N)

SOURCE CODE: UR/3186/65/000/120/0031/0036

1  
B+X

AUTHOR: Velikanova, Z. M.; Yarnykh, N. A.

ORG: none

TITLE: Laboratory investigation of the velocity field of a plane flow in the presence of a ridge structure on the bottom

SOURCE: Leningrad. Gosudarstvennyy hidrologicheskiy institut. Trudy, no. 120, 1965.  
Issledovaniya ruslovykh protsessov, 31-36

TOPIC TAGS: plane flow, vortex flow, flow velocity, velocity distribution, flow kinetics,  
HYDROLOGY

ABSTRACT: The authors present experimental data obtained from a study of the instantaneous and average velocity field above a two-dimensional sand ridge in a flow with distinctly separated circulation and transitional zones. The experiments were carried out at the Channel Laboratory of GEB GGI (Ruslovaya laboratoriya GEB GGI) in 1961. The glazed flume used in the experiments was 7 cm wide and 5 m long; the diameter of the sand particles varied from 0.1 to 0.25 mm, averaging 0.18 mm. Before the start of the experiment the sand was laid parallel to the bottom, then the bottom of the flume was inclined ( $i = 0.001$ ). The flume was filled with water, after which the same inclination of the free surface was

Card 1/3

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ACC NR: AT6016518

achieved by gradually increasing the flow rate of the water. In this case the flow rate was 1.7 liter/sec. The ridges that formed in the flume had a height of  $\Delta = 3$  cm, length  $\lambda = 30$  cm at a flow depth of the crest of the ridges  $H = 6$  cm. The lines of the crests of the ridges were perpendicular to the axis of the flume, thus demonstrating that the movement was two-dimensional. The ridges moved along the flume, keeping their height and length constant. High-speed photography was used to obtain the velocity field in the flow. The velocity field in the flow was recorded in a section completely encompassing one ridge at a frequency of 240 frame/sec. An examination of flow velocity distribution showed that the horizontal component of velocity at the boundaries of the transition of the flow did not substantially change over the greater part of the vertical. This velocity distribution differs from that usually observed in natural flows and can apparently be explained by the fact of the side walls of the flume. A stable circulation zone was observed at the trough of the ridge, within which the velocities markedly differed in magnitude and direction. In the lower part of the circulation zone velocities counter to the direction of the main transitional flow were observed. The velocities within the circulation zone are represented by lines of the current which divide the volume of water included within the circulation zone into streams having an equal flow rate. The data obtained broaden current concepts concerning the structure of a flow in the presence of two-dimensional sand ridges on the bottom. A ratio of the length of the vortex zone to the height of the ridge equal to  $5\Delta$  seems sufficiently reliable. The distribution to the bottom velocities within the vortex zone and the upward slope of the ridge that was obtained also

Card 2/3

L 38959-66

ACC NR: AT6018518

seems sufficiently reliable. The pattern of the distribution of velocities within the vortex zone that was obtained is of definite interest since this pattern had been little studied in the past. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 00/

Card 3/3

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859320003-0

VELIKAYA, N.N.

New data on the manifestation of Mesozoic igneous activity in central  
Kazakhstan. Trudy VSEGEI 111:123-126 '64.  
(MIRA 18.7)

APPROVED FOR RELEASE: 09/01/2001

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Prospecting significance of purified zones of polymetallic deposits  
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64-70 D '59. (MIRA 13:5)

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data of the argon method. Inform.sbor. VSEGEI no.54:63-67 '62.

(MIRA 17:1)

VELIKAYA, N.N.

Small intrusions of the Ahzhal-Ak-Sor fault zone.  
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(Kazakhstan--Rocks, Igneous)

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[New ways in the treatment of malignant tumors] Novye  
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Kiev, Naukova dumka, 1964. 70 p. (MIRA 18:1)

VELIKAYA, R.R. [Velyka, R.R.]

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1. Laboratory of General Physiology of the A.A.Bogomol'etz  
Institute of Physiology of the Academy of Sciences of the  
Ukrainian S.S.R., Kiyev.

(ELECTROCARDIOGRAPHY)

*V. E. L. I. R. A. Y. H. Y. E. I. I.*

USSR/Chemical Technology - Chemical Products and Their Application. Fermentation Industry, I-27

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63559

Author: Mal'tsev, P. M., Zazirnaya, M. V., Velikaya, Ye. I., Vyal'ko, Ye. F.

Institution: None

Title: Effects of Separation on Qualitative Composition of Beer Wort

Original

Periodical: Tr. Kievsk. tekhnol. in-ta pishchevoy prom-sti, 1953, No 13, 101-105

Abstract: Studies of qualitative changes in turbid beer wort on 5-minute centrifugation in laboratory precipitation centrifuge at 2,000 RPM. The indexes thus obtained are compared with those of clear wort (CW) collected from outlet of filter-press after filtration of turbid liquor that was concurrently subjected to separation. Residue of insolubles in CW was the same within 0.01-0.03 g/100 ml. Turbidity of separated CW is almost 2 times less due to more complete removal of colloids both prior to and after hop treatment of the wort. Color and pH of CW are the same. Protein content and dextrin content of CW are practically the same.

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(Kirovograd Province--Diatomaceous earth)

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VELIKAYA, Yelizaveta Ivanovna; SUKHOOL, Viktoriya Fominichna;  
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prof., retsenzent; MALCHENKO, A.L., prof., retsenzent;  
FERTMAN, G.I., prof., retsenzent; VOYKOVA, A.A., red.

[General methods of control in fermentation industries]  
Obshchie metody kontroliia brodil'nykh proizvodstv. Mo-  
skva, Pishchevaia promyshlennost', 1964. 273 p.  
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(MFA 18:12)

SHVETS, V.N., inzh.; MAL'TSEV, P.M., doktor tekhn. nauk;  
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2. USSR (600)
4. State Farms
7. Book on state farms ("State Farms." M. A. Abrosimov, ed. Reviewed by I. Velikevich, A. Lyubavskiy). Sov. Zootekh., 7, No. 4, 1952.
9. Monthly List of Russian Accessions, Library of Congress, June 1952.  
Unclassified.

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VPLIKH, Iosif Danilovich, jt. au.

Land rent relations in the Soviet village. Moskva, Gos. izd-vo, 1928. 204 p. (Ekonomicheskaiia biblioteka) (52-52117)

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Leaves of land in the Soviet village. Pod redaktsiei i s predisloviem IA. A. Iakovleva. Moskva, Gos. izd-vo, 1928. 204 p. (Ekonomicheskaiia biblioteka) At head of title: A. Azizian i I. Velikevich.

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SO: Monthly List of Russian Accessions, Vol. 7, No. 6, Sep. 1954

VELIKEVICH, T. D.

I. D. Velikevich, Vysokoilye urozhay zernovykh kul'tur v sovkhozakh (High-Yield Grain Crops in Sovkhozes), Sel'khozgiz, 16 sheets.

The booklet generalizes advanced experience in obtaining high-yield grain crops in leading sovkhozes.

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SO: U-6472, 18 Nov 1954

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So: Knizhnaya letopis', No. 27, 2 July 1955

MURASHKO, Mikhail Grigor'yevich; GATILLI, Pavel Dmitriyevich;  
VELIKEVICH, Pavel Adamovich; VOYTEKHOVSKAYA, Emiliya  
Aleksandrovna; ZOLOTAREV, T.L., prof., red.; BARABANOVA, Ye.,  
red. izd-va; SIDERKO, N., tekhn. red.

[Cadastral survey of water-power resources of the White Russian S.S.R.; potential hydroelectric power resources] Vodno-energeticheskii kadastr Belorusskoi SSR; potentsial'nye gidroenergoressursy. Minsk, Izd-vo Akad. nauk BSSR. Vol.2. [Album of cadastral graphs] Al'bom kadastrovkh grafikov. Pod red. T.L.Zolotareva. 1962. 217 p. (MIRA 16:1)  
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MURASHKO, Mikhail Grigor'yevich; GATILLO, Pavel Dmitriyevich; VELIKOVICH,  
Pavel Adamovich; VOITSEHOVSKAYA, Emma Aleksandrovna; BLIZNYAK,  
Ye.V., prof., doktor tekhn.nauk, zasluzhennyy deyatel' nauki i  
tekhniki [deceased]; ZOLOTAREV, T.I., prof., doktor tekhn.nauk,  
red.; MARINS, L., red.izd-va; VOLOKHANOVICH, I., tekhn.red.

[Cadastral survey of water-power resources of the White Russian  
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1960. 281 p. Maps. (MIRA 13:10)  
(White Russia--Hydroelectric power)

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USSR/Engineering  
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Aug 48

"New Books"  $\frac{1}{2}$  p

"Mekh Trud i Tyazh Rabot" No 8

Three good books have been published in 1948: Vlasov's "Saw Production," Skiba's "Mechanization of Wagon Repair Work," and Velikhov's "Erection of Metallic Constructions." Books have been recommended as texts for higher technical schools.

PA 29/49T30

STAMBOLIEV, Mristo, vanredni profesor (Skopje); VELIKOV, Dimitar, asistent

Cellular anhydrite. Tehnika Jug 19 no.6: Suppl: Građevinarstvo  
18 no.6:1034-1038 Je '64.

1. Faculty of Engineering, University of Skopje, Skopje.

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Fundamentals of municipal government: general theory of municipal administration, finance  
and methods of government Moskva, Gos. izd-vo, 1928. 467 p.

Yudin HJ9169.V4

APPROVED FOR RELEASE: 09/01/2001

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i arkhitekture, 1954. 213 p.

1. Building, Iron and steel

N.E.LIKHOV, T.E.P.  
P.4; 9

PHASE I BOOK EXPLOITATION

sov/3762

Konferentsiya po magnitnoy gidrodinamike. Riga, 1958.

Voprosy magnitnoy hidrodinamiki i dinamiki plazmy; trudy Konferentsii.  
(Problems in Magnetohydrodynamics and Plasma Dynamics; Transactions of a  
Conference) Riga, Izd-vo AN Latvийской SSR, 1959. 343 p.  
Errata slip inserted. 1,000 copies printed.

Sponsoring Agency: Akademiya nauk Latvийской SSR. Institut fiziki.

Editorial Board: D.A. Frank-Kamenetskiy, Doctor of Physics and Mathematics,  
Professor; A.I. Vol'dek, Doctor of Technical Sciences, Professor; I.M. Kirko,  
Doctor of Physics and Mathematics; V.Ya. Veldre, Candidate of Physics and  
Mathematics; V.G. Vitol, Candidate of Physics and Mathematics; Yu.M. Krumin';  
and V.Ya. Kravchenko.

Ed.: A. Teytel'baum; Tech. Ed.: A. Klyavinya

PURPOSE: This book is intended for physicists working in the field of magneto-  
hydrodynamics and plasma dynamics.

Card 1/12

## Problems in Magnetohydrodynamics(Cont.)

SOV/3762

COVERAGE: This volume contains the transactions of a conference held in Riga, June 1958, on problems in applied and theoretical magnetohydrodynamics. The objects of the conference were the investigation of the basic trends in theoretical and applied magnetohydrodynamics, establishing contact between the people doing research in different branches of magnetohydrodynamics, and promoting the participation of theoretical physicists in problems in applied magnetohydrodynamics. More than 160 persons from different parts of the Soviet Union took part in the conference, and 55 papers were read. Similar conferences are to be held regularly in the future; the next such conference is scheduled to be held in Riga in June 1960. In this present collection of the transactions of the conference, most of the papers and comments on papers are presented by the authors themselves in an abridged form. The book is divided into two parts: the first part deals with problems in theoretical magnetohydrodynamics and plasma dynamics, and consists of 35 articles on such aspects of the problem as the application of magnetohydrodynamics in astrophysics (D.A. Frank-Kamenetskiy), magnetohydrodynamics and the investigation of cosmic-ray variations (L.I. Dorman), acceleration of plasma in a magnetic field (G.V. Gordeyev and A.I. Cubanov), stability of shock waves and magnetohydrodynamics (A.I. Akhiyezer). The second part, consisting of 33 articles, deals with problems of experimental magnetohydrodynamics, including the application of physical simulation for investigation of electromagnetic processes in liquid metals (I.M. Kirko) and the development of electromagnetic pumps (P.G. Kirillov), at the Institute of Physics of the

Card 2/12

## Problems in Magnetohydrodynamics (Cont)

SOV/3762

Academy of Sciences, Latvian SSR. Several articles are devoted to induction pumps, electromagnetic crucibles, electromagnetic stirrers for molten metals, and their application in the metallurgical industry including schematic diagrams of their power-supply systems. References are given at the end of most of the articles.

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21(7)  
AUTHOR:Velikhov, Ye. P.

SOV/56-36-4-34/70

TITLE:

The Stability of a Plane Poiseuille Flow of an Ideally Conducting Fluid in a Longitudinal Magnetic Field (Ustoychivost' ploskogo Puazyleva techeniya ideal'no provodyashchey zhidkosti v prodol'nom magnitnom pole)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 4, pp 1192-1202 (USSR)

ABSTRACT:

The author investigated the necessary and sufficient conditions for the stability of the flow of an ideally conducting incompressible fluid in a longitudinal magnetic field with respect to minor perturbations. The asymptotic method according to Heisenberg and Lin is used, the applicability of which has already been proved. The rather detailed paper at first deals with the posing of the problem. The magnetohydrodynamic basic equations are set up and it is shown in what way the problem can be reduced to the finding of eigenvalues of the solution of a not self-adjoint differential equation (2.4) with given boundary conditions. In the following, the stability conditions are investigated and it is found that the condition

$A^2 > 1$  is sufficient. ( $A = B_c/V_c \sqrt{4\pi\epsilon}$ ,  $A$  = the Alfvén number.)

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The Stability of a Plane Poiseuille Flow of  
an Ideally Conducting Fluid in a Longitudinal  
Magnetic Field

$v_c$  = the characteristic velocity,  $B_c$  = the characteristic magnetic induction, and  $\rho$  = density). The next paragraph investigates the asymptotic method of solving the problem for  $R_m \gg 1$  ( $R_m = v_c L \lambda$ ),  $R_m$  = the magnetic Reynold number,  $L$  = the characteristic dimension of flow,  $\lambda = c^2 / 4\pi\sigma$ ,  $\sigma$  = conductivity, which is always the case with fluids of good conductivity. The next paragraph deals with the stability of a plane flow at  $R_m = \infty$ . Among others, expressions are derived for  $A_{crit}$  and  $R_{crit}$  (the hydrodynamic Reynold number,  $R_h = v_c L / \nu$ ,  $\nu$  = kinematic viscosity). It holds that  $R_{crit} \sim \frac{const}{(A_{crit} - A)^2}$ . Finally the stability of Poiseuille flow is investigated by the numerical method for a parabolic velocity profile. For  $A = 0.08$  and  $kR_m = \infty, 10^8, 10^7, 2 \cdot 10^6$  the values obtained are tabulated and two diagrams show the neutral curve for  $kR_m = \infty$  (Fig 3) and the connection of  $R_{crit}$  and the wave number of the critical

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an Ideally Conducting Fluid in a Longitudinal  
Magnetic Field

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perturbations of A (Fig 4). The values of the latter are given by table 4. For the stability of a plane flow with arbitrary profile in an ideally conducting fluid with respect to infinitely small perturbations it holds that  $A > 1$ , i.e.  $B_c^2/8\pi \geq \rho V_c^2/2$ . The critical value of the magnetic field which stabilizes flow is  $0.1^* V_o \sqrt{4\pi Q}$ ;  $V_o$  is the velocity in the center of the channel. The author finally thanks S. I. Braginskiy for raising the problem and for his advice, and D. A. Frank-Kamenetskiy for discussions. There are 4 figures, 4 tables, and 8 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 9, 1958

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24(3), 21(7)

AUTHOR:

Velikhov, Ye. P.

SOV/56-36-5-14/76

TITLE:

The Stability of Flow of an Ideally Conductive Liquid Between Rotating Cylinders in a Magnetic Field  
(Ustoychivost' techeniya ideal'no provodyashchey zhidkosti mezhdu vrashchayushchimisya tsilindrami v magnitnom pole)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 5, pp 1398-1404 (USSR)

ABSTRACT:

In a number of papers by Western authors (Refs 1 - 4) the flow stability of a viscous incompressible liquid between rotating cylinders has already been investigated. The classical (Rayleigh) stability condition is  $\Omega_1 R_1^2 \Omega_2 R_2^2$  (cf. Landau and Lifshits, reference 5) and follows from the conservation of the angular momentum of the particles of the liquid ( $\Omega_i$  denotes the angular velocities,  $R_i$  the cylinder radii). The author of the present paper investigates the stability of the flow of an ideally conductive non-viscous liquid located in a magnetic field for the

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Liquid Between Rotating Cylinders in a Magnetic Field

present considered to be axial. (For the case of a viscous liquid having a low degree of conductivity, the same problem has already been solved - (see reference 6) ). In these investigations the influence exercised by viscosity upon the perturbations of the steady flow are neglected, and only the so-called "linear" stability of the flow is investigated, i. e. the stability with respect to perturbations with infinitely small amplitudes. First, the sufficient conditions for stability are investigated for an axial- and then for a toroidal field, and the critical values for the magnetic fields stabilizing flow are given. The stabilizing influence exercised by the field is found to be the greater, the more rapidly the latter decreases in the direction towards the periphery. If the equilibrium field increases proportionally to  $r$ , the transport of the tubes of force does not influence the formation of an instability. If the field decreases towards the outside or if it grows at a rate that is slower than proportional to  $r$ , the energy of the perturbations goes over into energy of the magnetic field in the case of radial circulation. The author

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thanks S. I. Braginskiy for raising the problem and for  
valuable advice. There are 1 figure and 9 references, 4  
of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State  
University)

SUBMITTED: October 9, 1958

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S/057/61/031/002/004/015  
B020/B067

3.9000 (1041, 1155 only)

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AUTHOR:

Velikhov, Ye. P.

TITLE:

Stability of the plasma - vacuum boundary

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 2, 1961, 180-187

TEXT: As is known the boundary of a magnetically trapped plasma is unstable toward spouted disturbances because these disturbances do not increase the density of magnetic energy. This is due to their capability of reducing the potential energy of plasma without distorting the magnetic lines of force. To stabilize the plasma, the ends of the lines of force are frozen into ideally conductive plates. In this case, any distortion of the plasma boundary increases the energy of the magnetic field. This stabilizing effect is studied with the simplest model of a plane, homogeneous plasma layer with the density  $f$ , with a magnetic field  $\vec{B}$  which counteracts the force  $F_g$  by means of an outer magnetic field  $\vec{H}$ . In practice, this effect would be bound to occur in mirror traps where the centrifugal force of the particle motion along the distorted lines of force causes instability. The magnetic lines of force can be frozen in by means of

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Stability of the plasma - vacuum boundary

conductive plates at the front of the system. Such an effect occurs in the trap formed by the magnetic field of the Earth, with the ionosphere acting as the plate. It should be added that in an ideal system without zero-pressure plasma between the hot plasma and the wall, this effect does not occur. The author qualitatively studies the stability. He discusses the stability of plasma with a blurred boundary by a general example and, finally, the stability of the exponential transition layer. The following conclusions were drawn: If the ends of the lines of force are fixed, i.e., the plasma at the conductive walls contacts points at a certain distance from  $2L_2$ , the condition for a stable plasma boundary is

$$\pi B_0^2 / 16 L_1 L_2 \delta_0 > g/l,$$

where  $g$  is the acceleration of the force separating the charges, and  $2L_1$  the width of the dense plasma section. If the instability is related to the effect of centrifugal force,

$$g \sim v_{||}^2 / R_0$$

where  $v_{||}^2$  is the particle velocity along the lines of force, and  $R_0$  the

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radius of curvature of the lines of force. Then

$$\pi B_o^2 / 16 L_1 L_2 v_o^2 > v_{||}^2 / 1 R_o \sim T / M L R_o,$$

i.e., the stability condition reads

$$\beta = 8\pi p / B_o^2 < (\pi^2 / ?) \cdot (1 R_o / L_1 L_2),$$

which holds only if  $\beta \gg 1$ . The author thanks A. A. Vedenov for raising the topic and discussing the main problems. There are 2 Soviet-bloc references.

SUBMITTED: May 14, 1960

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S/053/61/073/104/006/007  
B125/B201

24.2120 also 3617, 3817

AUTHORS: Vedenov, A. A., Velikhov, Ye. P., Sudeyev, R. Z.

TITLE: The stability of plasma

PERIODICAL: Uspekhi fizicheskikh nauk, v. 73, no. 4, 1961, 701-766

TEXT: The authors of the present paper report on the basic physical results of the theory of stability, and illustrate the subject by physical considerations, without making an analysis of the mathematical means. The problem of the stability has been practically studied to some completeness only where small disturbances are concerned. The linear theory does not, in principle, distinguish between metastable and stable conditions, and is therefore unsuited in the case where a steady state is separated by a barrier from another one. This problem already leads to the nonlinear theory of stability. With the exception of some special cases, there is as yet no nonlinear theory of stability. The "supercritical" theory of stability, which has been successfully developed in the recent past, deals with the effect of perturbations on an average background, and the development of small perturbations on this background. This method

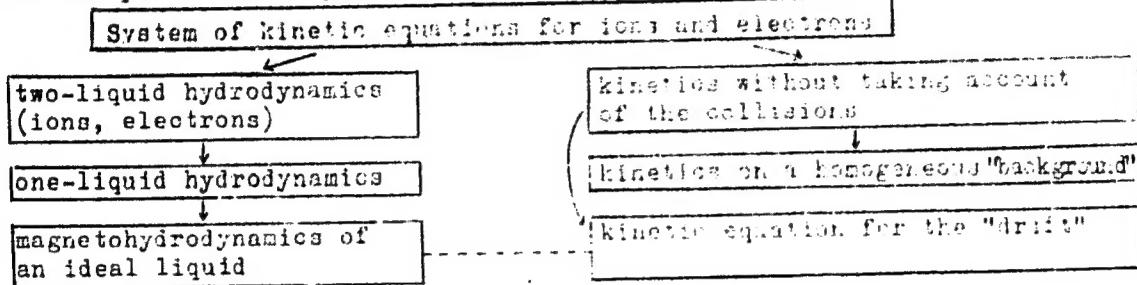
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## The stability of plasma

is suitable if the critical conditions of stability are exceeded to a slight extent. Of some significance in terms of physics are (1) the aperiodic instability, where the deviation from the position of equilibrium increases monotonically in the progress of time; (2) oscillations with growing amplitude. The mathematical conditions for the aperiodicity or for an oscillation instability read:  $\text{Re } \omega = 0$  and  $\text{Re } \omega \neq 0$ , respectively. [Abstractor's note: because of the length of the paper, only its articulation and the principal equations can be given here.] The methods for the plasma description are interrelated as follows:



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The stability of plasma

The system of equations of ideal magnetohydrodynamics for an ideal plasma (zero dissipation and vanishing dissipation) reads:

$$\frac{\partial \mathbf{q}}{\partial t} + \operatorname{div} \mathbf{q} \mathbf{v} = 0. \quad (3.1)$$

$$\frac{\partial \mathbf{v}}{\partial t} + (\mathbf{v}, \nabla) \mathbf{v} = -\frac{1}{\rho} \nabla p + \frac{1}{4\pi\rho c} [\operatorname{rot} \mathbf{H}, \mathbf{H}], \quad (3.2)$$

$$\frac{\partial \mathbf{H}}{\partial t} = \operatorname{rot} [\mathbf{v}, \mathbf{H}], \quad (3.3)$$

$$p = p(\rho). \quad (3.4)$$

When considering dissipative effects, the term  $\eta \Delta \vec{v} + (\frac{\eta}{3} + \zeta) \operatorname{grad} \operatorname{div} \vec{v}$  appears additionally on the right-hand side of (3.2), where  $\eta$  and  $\zeta$  denote the viscosity coefficients. In addition,  $\frac{c^2}{4\pi\rho} \Delta \vec{H}$  appears on the right-hand side of (3.3). The place of (3.4) is taken by the two equations  $p = p(\rho, T)$  and

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